

IV. REMARKS

In the Office Action, replacement sheets of drawing were required for Figs. 8-10 so that they can be clearly reproduced. Replacement sheets are being provided.

Correction of the Abstract was required by removal of the first paragraph. A corrected Abstract is presented to meet this requirement for correction of the Abstract.

Claim 4 was rejected under 35 U.S.C. 112 as being indefinite for reasons set forth in the Office Action. Claim 4 has been amended to define the subtraction process more accurately, and in accordance with the examiner's presumed understanding of the claim, thereby to overcome this ground of rejection.

Claims 1-3, 5-6, 8-9, and 12-14 were rejected under 35 U.S.C. 103 as being unpatentable over the combined teachings of the article by Cardoso and the article by Hassibi as explained in the Office Action. Claims 4, 7, 10, and 11 were rejected under 35 U.S.C. 103 over the combined teachings of Cardoso and Hassibi in view of one or more of Talluri (US 6,026,183), Aghihotri (US 6,614,930), Hirsch (US 5,261,007), and Graupe (US 5,721,694) as set forth in the Office Action.

In the analysis of the examiner, the basic inventive feature of signal processing with the cost function is discussed with reference to the primary references Cardoso and Hassibi, this applying to all of the claims.

The examiner relies on Cardoso, at equation 6 (Points 8 and 9 in the Office Action), to teach minimizing a cost function concerning a separating matrix. However, Cardoso states that this example is for a specific state of kurtosis. In the

preamble of claim 1 and in other ones of the claims, there is reference to multiple multidimensional signals. In such a circumstance, it is likely that both positive and negative values of kurtosis would be found, so that the specific example given by Cardoso at equation 6 would not apply. To emphasize this distinction, new claims 16-17 and 19-20 are provided to show that the cost function is a nonlinear function alterable in response to kurtosis of observed data signals. Therefore, the single example given by Cardoso would not apply generally to the practice of the present invention, since different functions would normally be employed. Accordingly, all of claims, particularly claims 16-17 and 19-20, are believed to be free of the rejections under 35 U.S.C. 103 and to have allowable subject matter.

The examiner has also argued that the Cardoso Equation 6 (Point 9 of the Office Action) demonstrates a monotonously increasing function. However, it is not clear whether Cardoso is building a separation matrix with the operation of Equation 6. New claims 15 and 18 are provided to specify the composition of the cost function mathematically, so as to distinguish over Cardoso. The composition of the nonlinear cost function is disclosed in the specification at equations 8, 10, 14 and 15, and on page 3 at line 12. Accordingly, for the foregoing reasons, all of claims, particularly claims 15 and 18, are believed to be free of the rejections under 35 U.S.C. 103 and to have allowable subject matter.


With respect to the examiner's attempt to combine the teachings of Hassibi with the teachings of Cardoso, it is noted that the present specification teaches on pages 3-7 that there are problems in trying to estimate a separation matrix, and various

forms of analysis of the estimation are presented. Inspection of the article by Hassibi shows that the teachings are directed generally to the use of the a Least Mean Squares algorithm for estimation of the operation of an adaptive filter. Reference is made to minimax estimation (page 1, col. 2, second full paragraph). However, adaptive filters vary in their specific construction and the operation to be performed. Absent any specific reference in Hassibi to the separation matrix, and in view of the problems addressed by the present specification and peculiar to estimation of the separation matrix, one might wonder if the Hassibi teaching would be applicable to estimation of the separation matrix, but there is no indication in Hassibi that success would be attained by the minimax process in estimation of the separation matrix. Accordingly, it must be concluded that there is no motivation to combine Hassibi with Cardoso, as suggested by the examiner. Therefore, this argument is believed to overcome the rejections under 35 U.S.C. 103.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


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10 Dec 2004
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